

REMARKS

Claims 13, 15-27, 29 and 32-46 are pending and stand rejected under 35 U.S.C. §§ 112 or 103. Claims 14, 30 and 31 have been previously cancelled.

Applicants have amended claims 13, 15-21, 27, 29, 33, 34, and 37. Claims 44 and 45 have been cancelled.

REJECTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 13, 15-27, 29, 32-43 and 46 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement because the claims recite “wherein the food composition has a texture that remains substantially unchanged by adding the α -glucan until the food composition enters a stomach of a person.” This limitation has been deleted from the claims. Accordingly, withdrawal of this rejection is respectfully requested.

The rejections asserted against claim 44 and 45 are now moot as these claims have been deleted.

REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 13, 15-27, 29, 32-43 and 46 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite for their recitation of “wherein the food composition has a texture that remains substantially unchanged by adding the α -glucan until the food composition enters a stomach of a person.” As mentioned above, these limitations have been deleted from the claims. Accordingly, withdrawal of this rejection is respectfully requested.

The rejections asserted against claim 44 and 45 are now moot as these claims have been deleted.

REJECTIONS UNDER 35 U.S.C. § 103

The pending claims have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the following reference(s):

Claim(s)	Cited Reference(s)
13, 15-27, 29, 32, 34, 35, 41 and 46	Van Geel-Schutten ¹
15, 16, 18-20, 24, 29, 32-34, 36-40, 42 and 43	Cote ² and Ritchey ³

The rejection asserted against claims 44 and 45 is now moot as these claims have been deleted.

I. REJECTION OF CLAIMS 13, 15-27, 29, 32, 34, 35, 41 AND 46

Claims 13, 15-27, 29, 32, 34, 35, 41 and 46 as being unpatentable over Van Geel-Schutten.

Claim 13 has been amended to recite a method of thickening a composition. The method comprises adding a branched α -glucan to the composition. The branched α -glucan has an average molar weight of at least 10^5 Da and a degree of branching of at least 8%. The α -glucan comprises reuteran. The composition is acidified to a pH of 2.0 or less. The acidifying step causes the thickening of the composition. Support for the amendments to claim 13 can be found in the specification, for example, at pages 8-10. Claims 15-23 and 46 ultimately depend from claim 13.

Claim 34 has been amended to recite a method of thickening a liquid composition. The method comprises adding at least one branched α -glucan having an average molar weight of at least 10^5 Da and a degree of branching of at least 8% to the liquid composition. The liquid composition is acidified to a pH of 2.0 or less. The acidifying step causes the thickening of the liquid composition. Support for the amendments to claim 13 can be found in the specification, for example, at pages 8-10.

Van Geel-Schutten discloses that *Lactobacillus reuteri* LB 121 cells grown on sucros synthesize a glucan and a fructan with molecular masses of 3,500 and 150 kDa, respectively, and identifies the biosynthetic enzymes involved and provides a structural

¹ Van Geel-Schutten *et al.*, APPLIED AND ENVIR. MICROBIOL., (1999) 65(7): 3008-3014 ("Van Geel-Schutten").

² United States Patent No. 5,786,196 to Cote *et al.* ("Cote").

³ United States Patent No. 5,688,547 to Ritchey *et al.* ("Ritchey").

characterization of the glucan and fructan synthesized.⁴ High-molecular weight polysaccharides, such as cellulose, pectin and starch, are used in the food and non-food industries.⁵ These polysaccharides are used as viscosifying, stabilizing, emulsifying, gelling or water-binding agents.⁶ Van Geel-Schutten also teaches that exopolysaccharides (EPS) produced from lactic acid bacteria, which have GRAS (“generally recognized as safe”) status, can contribute to the texture of fermented milk.⁷ Specifically, Van Geel-Schutten states that “Lactic acid bacteria ... are known to produce an abundant variety of exopolysaccharides (EPS) molecules [citations omitted], which *contribute to the texture* of fermented milk.”⁸ Thus, Van Geel-Schutten teaches thickening fermented milk at a native pH, and does not teach an acidification step, or that the acidification step would thicken a composition containing any (EPS), let alone reuteran.

In order to support a rejection under Section 103, the cited reference(s) must at least teach or make obvious each and every element recited in the claims. Moreover, new uses of an old compound are patentable. In this case, Van Geel-Schutten does not teach or suggest an acidification step or thickening a composition by acidification. In fact, Van Geel-Schutten teaches away from this because it teaches that its EPS contributes to the texture of fermented milk. Thus, Van Geel-Schutten teaches that by adding the glucans and fructans produced by the LB121 strain, the food product will have a different texture at a native pH, as opposed to an acidified pH. For these reasons, Van Geel-Schutten does not teach the invention as recited in claims 13 and 34 or claims 15-23, 36 and 46, which ultimately depend from claims 13 or 34.

Additionally, Van Geel-Schutten cannot be used to support a rejection under 35 U.S.C. § 103 because it is non-analogous prior art. Van Geel-Schutten is directed to modifying the texture of fermented milk with EPS, not thickening a composition. Taste, smell or preserving food have nothing to do with thickening a composition. Thus, there is no reason for a person of

⁴ Van Geel-Schutten at page 3008.

⁵ Van Geel-Schutten at page 3008.

⁶ Van Geel-Schutten at page 3008.

⁷ Van Geel-Schutten at page 3008.

⁸ Van Geel-Schutten at page 3008 (emphasis added).

ordinary skill in the art even to consider Van Geel-Schutten when working on the recited invention.

Claim 27 has been amended to recite a food composition comprising 1-10 wt.% of at least one branched α -glucan having an average molar weight of at least 10^5 Da, and at least 1 wt.% of a food protein, wherein the α -glucan has a degree of branching of at least 8% and comprises reuteran, and wherein the food composition is thickened upon entering a stomach of a person. Support for the amendments to claim 27 can be found in the specification, for example, at pages 8-10. Claim 41 depends from claim 27.

Claim 29 has been amended to recite a food composition comprising 1-10 wt.% of at least one branched α -glucan having an average molar weight of at least 10^5 Da, and at least 1 wt.% of a food protein, wherein the α -glucan has a degree of branching of at least 8%, wherein the food composition is a liquid composition, and wherein the food composition is thickened upon entering a stomach of a person. Claims 24-26 and 32 depend from claim 29.

Van Geel-Schutten does not teach or suggest the thickening of a food composition upon entering a stomach. Notwithstanding this, even assuming that a *prima facie* case of obviousness has been established (which the Applicants expressly deny), the unexpected results provided in the specification at pages 8-10 rebut the obviousness rejection. *Ormco Corp. v. Align Technology, Inc.*, 463 F.3d 1299, 1311, 79 U.S.P.Q.2d 1931 (Fed. Cir. 2006); MPEP § 2145; *see also In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995). To establish unexpected results, the Applicant must

establish (1) that there actually is a difference between the results obtained through the claimed invention and those of the prior art, *In re Klosak*, 455 F.2d 1077, 59 CCPA 862 (1972); and (2) that the difference actually obtained would not have been expected by one skilled in the art at the time of invention, *Id.*; *In re D'Ancicco*, 439 F.2d 1244, 58 CCPA 1057 (1971).

In re Freeman, 474 F.2d 1318, 1324 (CCPA 1973). Without evidence to the contrary, an applicant need only provide substantially improved results and state that the results were unexpected. *Soni*, 54 F.3d at 750; *In re Lee*, App No. 10/091,061, 2007 WL 176690 at *3 (BPAI June 19, 2007).

In *Soni*, the examiner rejected certain claims as obvious in view of a combination of references. The applicant directed the examiner to the data in the specification, and argued that the increase in tensile strength and the increase in peel strength rebutted the rejections. *Soni*, 54 F.3d at 747. On appeal to the Federal Circuit, it was argued that the Board

could have taken judicial notice of the fact that higher molecular weight polymers would have been expected to tolerate higher filler loadings without degradation in properties and that it could have taken notice of the fact that it is the polymer *per se* that primarily determines the mechanical properties of a filled polymer composition.

Id. at 750. However, the Federal Circuit found this argument fatally flawed because the Board failed to support its position with facts or evidence. *Id.* at 750; *see also Lee*, 2007 WL 176690 at *3. In summary, the Federal Circuit held that

[m]ere improvement in properties does not always suffice to show unexpected results. In our view, however, when an applicant demonstrates *substantially* improved results, as *Soni* did here, and *states* that the results were *unexpected*, this should suffice to establish unexpected results *in the absence of* evidence to the contrary.

Soni, 54 F.3d at 751.

Here, the specification establishes a substantial difference between milk and Slim-Fast® drinks where reuteran was added (see pages 8-10 of the Specification). These differences were unexpected. Accordingly, even assuming that a *prima facie* case of obviousness has been established, the unexpected results rebut the rejections. Accordingly, reconsideration and withdrawal of the rejection asserted against claims 13, 15-27, 29, 32, 34, 35, 41 and 46 is respectfully requested.

II. REJECTION OF CLAIM 15, 16, 18-20, 24, 29, 32-34, 36-40, 42 AND 43

Claim 15, 16, 18-20, 24, 29, 32-34, 36-40, 42 and 43 have been rejected as unpatentable over Cote in view of Ritchey.

Cote is generally directed to alternanase, an enzyme that cleaves alternan producing a low molecular weight fraction that exhibits reduced viscosity and increased

solubility relative to native alternan.⁹ “The low viscosities of these products lend themselves to potential commercial application as substitutes for gum arabic, for use as bulking agents and extenders in foods and cosmetics, particularly as noncaloric, carbohydrate-based soluble food additives in artificially sweetened foods.”¹⁰

The average molecular weight of these oligosaccharides is well below 10^5 Da because of the production of relatively large amounts of mono-, di- and trisaccharides as well as cyclic tetrasaccharides. Thus, Cote does not teach using a composition having an average molecular weight of at least 10^5 Da as recited in independent claims 19, 23, 35, 34 and 37. Furthermore, Cote does not teach acidifying a food composition containing alternan, or that acidification thickens the food composition.

Ritchey does not overcome these deficiencies. Ritchey is directed to a nutritional meal replacement containing a natural or artificial sweetener.¹¹ One example of an artificial sweetener is gum arabic.¹² Assuming that one would replace Ritchey’s gum arabic with Cote’s alternan, one would have no reason to believe that the gum arabic thickens upon acidification or upon entering the stomach. In contrast, independent claims 13, 29, 33, 34 and 37 recited that the composition thickens upon acidification or entrance into a stomach when the composition contains the recited α -glycan. Therefore, the combination of Cote and Ritchey do not teach each and every element recited in the claims.

Just like Van Geel-Schutten, the combination of Cote and Ritchey do not teach or suggest acidifying a composition. Nor do they teach or suggest that the acidification thickens the composition. Furthermore, even if Cote and Ritchey taught or suggested this composition, the unexpected results observed when practicing the recited invention would rebut any *prima facie* showing of obviousness.

⁹ Cote at abstract.

¹⁰ Cote at col. 1, lines 34-39.

¹¹ Ritchey at abstract.

¹² Ritchey at col. 5, line 26.

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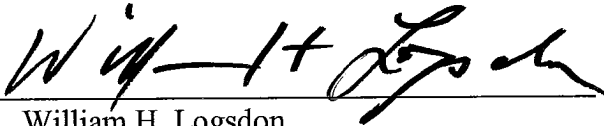
CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that pending claims 13, 15-27, 29, 32-43 and 46 in the instant application are patentable over the prior art and are in condition for allowance. Accordingly, reconsideration and withdrawal of the rejections and objections are respectfully requested.

Should the Examiner have any questions or concerns, the Examiner is invited to contact Applicants' undersigned attorney.

Respectfully submitted,

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